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| --- |
| /\* |
|  | Lagrange Interpolation |
|  | \*/ |
|  |  |
|  | #include <stdio.h> |
|  | #include <stdlib.h> |
|  |  |
|  | int main() { |
|  | int n; |
|  | printf("Enter the number of values availiable: "); |
|  | scanf("%d", &n); |
|  |  |
|  | double x[n]; |
|  | double y[n]; |
|  | // x is stored in row 1 and y in row 2 |
|  |  |
|  | printf("Enter the values [x y]:\n"); |
|  | for (int i = 0; i < n; i++) { |
|  | scanf("%lf %lf", &x[i], &y[i]); |
|  | } |
|  |  |
|  | double x1; |
|  | printf("Enter the value for x: "); |
|  | scanf("%lf", &x1); |
|  |  |
|  | double y1 = 0; |
|  |  |
|  | for (int i = 0; i < n; i++) { |
|  | double mul = 1; |
|  | mul \*= y[i]; |
|  | for (int j = 0; j < n; j++) { |
|  | if (j == i) continue; |
|  | if (mul == 0) break; |
|  | mul \*= (x1 - x[j]) / (x[i] - x[j]); |
|  | } |
|  | y1 += mul; |
|  | } |
|  |  |
|  | printf("Value of y is: %lf\n", y1); |
|  |  |
|  | return 0; |
|  | } |